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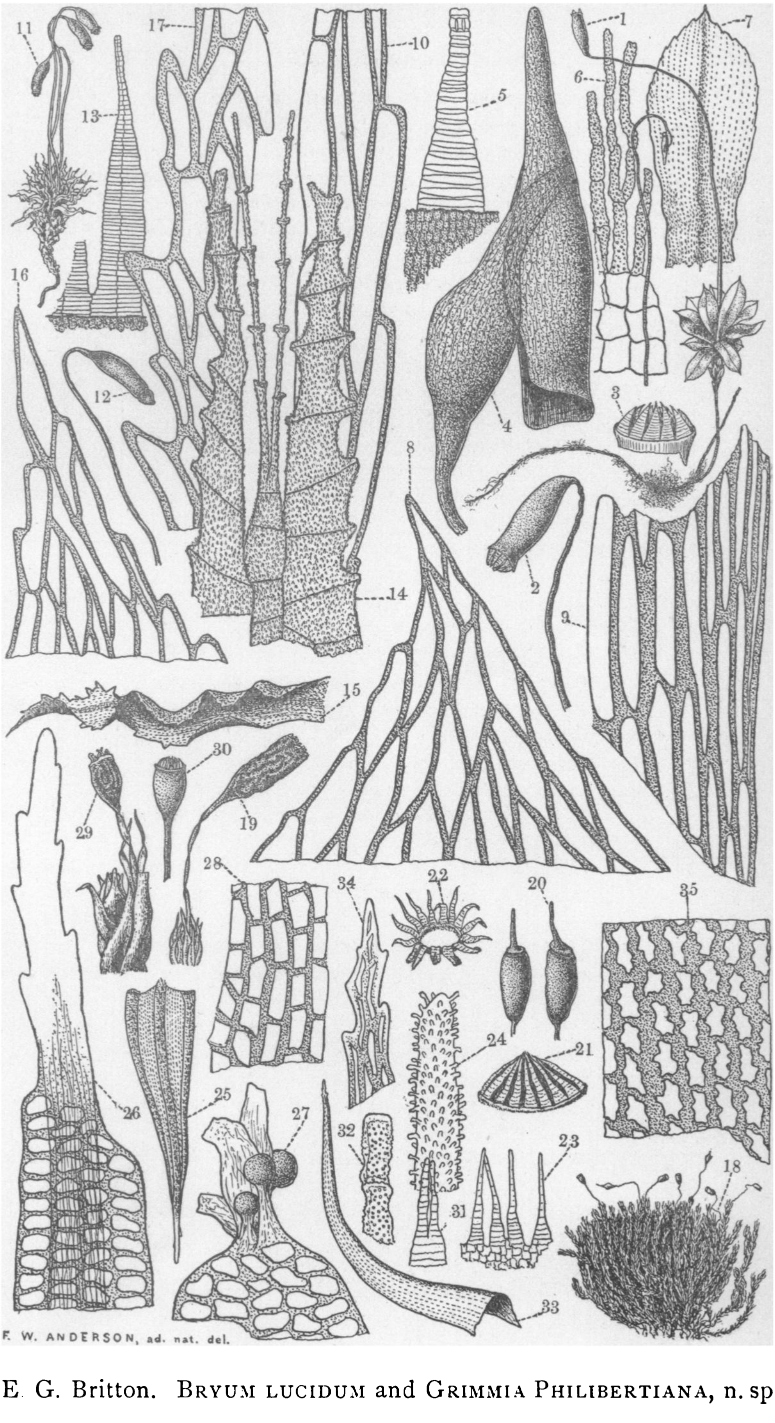
BULLETIN TORREY BOTANICAL CLUB. Plate CXIV.



E. G. Britton. Bryum lucidum and Grimmia Philibertiana, n. sp.

Contributions to American Bryology.—II.

By Elizabeth G. Britton.

A Supplementary Enumeration of the Mosses Collected by Mr. John B. Leiberg in Idaho, with Descriptions of two new Species.

(Plate CXIV).

Continued from Vol. XVI., Page 112.

Andræa petrophila, Ehrh. Dry slate rocks, Traille River basin, May, 1889 (6).

Buxbaumia indusiata, Brid., previously listed as *B. aphylla*, L. Decaying logs, Traille River basin (159).

Georgia pellucida, (L) Rab. (*Tetraphis pellucida*, Hedw). Decaying logs, Lake Pend d'Oreille, May, 1889 (155).

G. geniculata (Girgens). Braith. (*T. geniculata*, Girgens). Decaying logs in deep ravines, basin of Traille River, July, 1889 (194).

Oligotrichum Lyallii, (Mitt.) Lindb. Packsaddle Mountain, 8,500 feet, Lake Pend d'Oreille (73).

Polytrichum commune, L. Granite basins, near Rathdrum (229).

P. piliferum, Schreb. On rocks, Lake Pend d'Oreille, June, 1889 (110).

Var. *Hoppei*, Rab. (*P. Hoppei*, Hornsch.) Packsaddle Mountain, 6,000 ft. alt., Lake Pend d'Oreille, July, 1889 (163).

Fissidens limbatus, Sull. On granite ledges between high and low water line, Lake Pend d'Oreille, March, 1889, fertile (144).

F. osmundoides (Sw.), Hedw. With the above, sterile.

F. adiantoides (L.), Hedw. var. *immarginatus*, Lindb. Shores of Lake Pend d'Oreille, September, 1889, fertile (214).

Ditrichum flexicaule (Schleich.) Hpe. (*Leptotrichum flexicaule*, Hpe.) Exposed quartzite ledges, Traille River basin, September, 1889, sterile (232).

Dicranella secunda (Sw.), Lindb. (*D. subulata*, Schimp.) Shady canyons, Traille River basin, in woods, North Fork basin, May and June, 1889 (189).

Dicranella crispa (Ehrh.) Schimp. Upturned trees, broken soil, Traille River basin, September, 1889 (69).

Blindia acuta, (Huds.) Br. & Sch. On schistose boulders, deep ravines, Bareknob Range, Traille River basin, July, 1889 (207).

Dicranowcisia crispula, (Hedw.) Lindb. Granite ledges, Lake Pend d'Oreille, May, 1889 (193).

Dicranum schisti (Gunn.), Lindb. (*D. Blyttii*, Br. & Sch.) Fissures of quartzite rocks on mountains, 4,000–5,000 ft. alt., near Rathdrum, April, 1889 (178).

D. Starkei, Web. & Mohr. Granite ledges, Lake Pend d'Oreille, 5,000-8,000 ft., July, 1889 (205).

Dichodontium flavescens (Dicks.) Lindb. (*D. pellucidum*, var. *serratum*, Schimp.) Wet rocks in streams, spray of waterfalls, Lake Pend d'Oreille, March and May, 1889 (62).

Phascum acaulon, L. var. *piliferum* (Schreb.) Braithw. Grassy open places, Lake Pend d'Oreille, Feb. 1889 (117).

Pottia Heimii, (Hedw.) Fuernr. Clark's Fork of the Columbia, Lake Pend d'Oreille, Sept., 1889 (212).

Mollia tortuosa (L.) Schrank. (*Barbula tortuosa*, Web. & Mohr.) Crevices of rocks near water line, Lake Pend d'Oreille, also shifting sand bars, mouth of Clark's Fork, March, 1890 (235).

Tortula subulata (L.) Hedw. (*Barbula subulata*, Beauv.) Upturned roots, Lakeside, March, 1890 (210).

T. mucronifolia, Schwægr. (*B. mucronifolia*, Br. & Sch.) Sandy soil, mouth of Clark's Fork, Lake Pend d'Oreille, Sept. 1889 (209).

Barbula rubella (Hoffm.), Mitt. (*Didymodon rubellus*, Br. & Sch.) Banks of silt, Clark's Fork, Sept. 11, 1889 (211). Ledges and loose boulders, low water mark, Lake Pend d'Oreille, Sept. 1889 (227).

Hymenostylium curvirostre (Ehrh.) Mitt. (*Gymnostomum curvirostrum*, Hedw.) Wet limestone ledges, 2200 ft. alt., Lake Pend d'Oreille, March, 1890 (46).

Leersia alpina (Sm.) Lindb. (*Encalypta commutata*, N. & H.) Loose soil on mountains, 3,000–5,000 ft. Lake Pend d'Oreille, May, 1889 (33).

L. extinctoria (L.) Leyss. var. *pilifera*, (Funck.), Braithw. (*Encalypta vulgaris*, Hedw. var. *pilifera*, Schimp.) In small bright yellow cushions on naked soil, 2,500 ft. alt., on Cape Horn Mountain, Lake Pend d'Oreille, April, 1890 (242).

L. SELWYNI (Aust.) (*Encalypta Selwyni*, Austin). On magnesian limestone and dolomites .in canyons, Lake Pend d'Oreille, May–July, 1889 (166).

Grimmia apocarpa, Hedw. Wet rocks, Traille River basin, March, 1889 (157).

Var. *rivularis*, (Brid.) W. & M., (*G. rivularis*, Brid.) Traille River, March, 1889 (151). On basaltic rocks, Spokane River, May, June, 1889 (226).

G. conferta, Funck. Exposed granite ledges, Lake Pend d'Oreille, April, 1890 (245).

Var. *obtusifolia*, Sch. in same locations (246).

Var. *pruinosa* (Wils.) Braithw. (*G. pruinosa*, Wils.) Very common on dry limestone ledges, Cape Horn Mountain, 3,000 ft. alt., April, 1890 (247).

Grimmia torquata, Hornsch. Since the description of the fruit was published, (BULLETIN, xvi. 107), Mr. Leiberg has collected much finer specimens showing the fugacious peristome, and annulus. The teeth are short and broken, with a median line; the annulus is composed of many rows of cells, falling in fragments with the lid. (See Rev. Bryol. xvi. 64).

GRIMMIA PHILIBERTIANA, n. sp., Plate CXIV. Rare on quartz croppings of metaliferous veins, 6,000 ft. alt., divide between Traille River and Independence Creek, Sept. 27, 1889 (219).

Diœcious; plants pulvinate in small dark green cushions; stems 2-3 cm. high, naked and decumbent below, branching and spreading above; leaves erect-incumbent when dry, not secund, spreading when moist, 1½-2 mm. long; lanceolate, carinate, with recurved margins, and toothed hair-points 15 mm. long, but generally deformed and bearing granulose, globose propagula on the tips of the leaves or retuse and bifid along the midvein; cells above rounded, hexagonal, nearly 1 μ in diameter, faintly sinuous and oblong at base, discolored, with slight enlargement at the basal angles; vein heavy 1½ μ wide at base, rounded at back, sulcate above. Perichætium also deformed, leaves broader, inner short, triangular and hyaline at base. Pedicels one or two from the same perichætium; seta twisted, variously bent, 3-5 mm. long; capsule 1 mm. long, broadest at the mouth, smooth when dry, pale with a red rim; columella long, slender, excurrent; teeth recurved, red, undivided, with five or six short, broad segments below and four or five slender papillose internodes above; annulus of very delicate cells; lid with a beak nearly 1 mm. long, straight or oblique, calyptra mitrate just covering the beak.

Mistaken for *G. Hartmanni*, Schimp. (BULLETIN, xvi, 340, and Rev. Bryol. xvii, 16) which it so closely resembles that the figures given by Husnot (Musc. Gall. t. xxxix) and Braithw. (Brit. Mosses. t. xlviii.) would do for either. Specimens were sent to M. Philibert, whose excellent description in the Revue Bryologique xiv. p. 50, seemed to me to answer perfectly to my specimens. He kindly sent me fruiting specimens from Corsica, which differ in the plants being much larger, with stems 6-7 cm. long, leaves much twisted and secund, narrower and longer, much less deformed by propagula; with cells much more sinuous and the teeth of the peristone less papillose and *bifid?* so drawn by Mr. Anderson to whom I sent the only perfect peristome of *G. Hartmanni*. But it is evident that this is not always true, for Philibert says of these same Corsican specimens " Dents lanceoleés-lineares, obtuses, entieres, d'un rouge orangé assez pâle; tres-lisses dans les deux tiers inferieurs; le tiers superieur, légèrement papilleux." Ours are not *obtuse*, bright red not orange-colored, and conspicuously papillose. The difference between figs. 28 and 35 is also not so great in all specimens, these being extremes.

Dedicated to M. H. Philibert, Prof. honoraire de la Faculte des lettres, Aix, Bouches-du-Rhone, France, who has kindly furnished me with fruiting specimens, and who says: "Je croix que cette forme dois constituer une espèce nouvelle."

G. Muehlenbeckii, Schimp. Granite ledges, Lake Pend d'Oreille, May, 1889 (3 pp.).

G. montana, Br. & Sch. var. *brachyodon* (Aust.) L. &. J. Granite ledges, Lake Pend d'Oreille, May, 1889 (53 pp.). Quartzite ledges, 5,000 ft. alt. Rathdrum, April, 1889 (188).

G. alpestris, Schleich. Granite ledges, Chilco range, 6,500 ft. alt., May, 1889 (40). On erratic blocks of granite, Lakeside, Lake Pend d'Oreille, March, 1890.

G. ovata, W. & M. (*G. commutata*, Huebn.). Ledges near water line, Lake Pend d'Oreille, April, 1889, Feb., 1890, (13 & 17).

G. calyptrata, Hooker. On dry granite boulders, 2,500 ft. alt. Lake Pend d'Oreille, March, 1890 (55).

G. campestris, Burchell (*G. leucophæa*, Grev.). Dry exposed ledges, in closely adhering whitish tufts, Spokane River at Post Falls, above high water mark, April, 1890 (239).

G. Nevii, C. M. (*Racomitrium Nevii*, S. Watson). Wet ledges, Lake Pend d'Oreille, May, 1889 (19 pp).

G. canescens (Timm.) C. M. (*R. canescens*, Brid.). Rocky places, Lake Pend d'Oreille, Sept., 1889, fertile (149). On the ground on gravel bars in Traille River, submerged at high water, very abundant, sterile, July, 1890.

G. hypnoides (L.) Lindb. (*R. lanuginosum*, Brid.). Granite ledges, Lake Pend d'Oreille, sterile, July, 1889 (47).

G. ramulosa, Lindb. (*R. microcarpon*, Brid.). Granite ledges, Lake Pend d'Oreille, May, 1889 (186).

Pohlia pulchella, (*Webera pulchella*, Schimp.). Lime springs, Gold Creek, Lake Pend d'Oreille, April, 1890 (237).

BRYUM LUCIDUM, n. sp. (BULLETIN, xvi, 340).

Plants slender, scattered not gregarious, light glossy green; stems from radiculose stolons, 2-3 cm. high, simple and naked below; leaves rosulate, not twisted when dry, 3-5 mm. long, broadly elliptical above, with parallel margins at base, blunt with the vein disappearing below the apex or with a serrate-cuspidate point; vein heavy and frequently red at base, tapering and vanishing below the apex; margins of long prosenchymatous cells forming small appressed teeth, entire below. Cells of the lamina parenchymatous, elongated hexagonal. 1×2μ.

Diœcious. Pedicels single, 3-4 cm. long, stramineous, lustrous and sulcate; capsule reflexed, horizontal or erect, 5-7 mm. long, constricted below the mouth, neck short; teeth with a very faint median line (omitted in fig. 5) segments of endostome split, cilia 3-4 not appendiculate, faintly papillose, very irregular, variously divided and elongated; lid apiculate, calyptra cucullate, annulus not seen.

This species belongs to the section Rhodobryum nearest to *B. proliferum* (L). Sibth. (*B. roseum*, Schreb.), from which it differs in its habit, size, leaves not twisted when dry, pedicels single, marginal cells of leaves longer and in the irregular, not appendiculate cilia.

Collected on mountain slopes near Rathdrum in May, 1889 (224) and on the ground among pine needles, slopes of the Traille River; alt. 4,500 ft., Oct. 18, 1889, fruiting. Also sent to me in exchange for the above by Prof. D. C. Eaton, collected by R. S.

Williams at Tiger Butte, Montana, June 19, 1887 (60); also by John Macoun, who found it on the summit of the Gold Range, B. C., alt. 6,000 ft. under *Abies subalpina*, Aug. 8, 1889, sterile, named by N. C. Kindberg *Mnium simplex*, ms.; quite recently received from W. N. Suksdorf, collected in Falcon Valley, Washington, May 8, 1890 (7) sterile.

Meesia triquetra (L.) Lindb. (*M. tristicha*, Funck). Along open places by every mountain stream, July, 1890 (255).

Bartramia Œderiana (Gunn.) Sw. Precipices and ledges of the Chilco Range, May, 1889. Wet rocks in cold ravines, Traille River basin, April, 1889 (118).

B. ithyphylla, Brid. Fissures of rocks, Packsaddle Mt., 8,500 ft., July, 1889 (50).

B. Menziesii, Turn. Granite ledges, Lake Pend d'Oreille, April and May, 1889 (122).

Leskea polycarpa, Ehrh. Granite ledges, Lake Pend d'Oreille (240).

Pseudoleskea atrovirens (Dicks.). Br. & Sch. Outcroppings of quartz veins, Traille River, divide, Sept., 1889 (220).

Amblystegium Sprucei, Bruch. Crevices of rocks, Lake Pend d'Oreille, May, 1889 (216).

A. cordifolium (Hedw.) DeNot. Edges of beaver ponds, Lake Pend d'Oreille, Oct., 1889 (222).

Limnobium dilatatum, Wils. (*L. molle*, Br. & Sch.) Sterile, on ledges at low water line, Lake Pend d'Oreille, Sept. 1889 (265).

L palustre, Huds. Mountain streams, Lake Pend d'Oreille, Sept., 1889, sterile (215).

L. arcticum, Sommerf. Waterfalls, Traille River basin, Sept., 1889, sterile. (16pp). In cold mountain streams, Sept., 1890, sterile (266).

L. obtusifolium (Hook.), L. & J. Submerged rocks, swift mountain streams, fertile (16). In 10-25 feet of water, Lake Pend d'Oreille, sterile (79). According to Lesquereux and James. Manual, p. 400, this species is rare in fruit, having been found but once by E. Hall and then without the operculum, but specimens in the James herbarium labelled *Rhynchostegium rusciforme*, Br. & S., collected by Bolander in rivulets, California are fertile and operculate. Mr. Leiberg's specimens show a short, oblique, operculum and great diversity in the basal cells of the leaf.

Isothecium stoloniferum, Hook. Granite ledges, in shady places, Lake Pend d'Oreille, May, 1889 (58 and 174).

Pterigynandrum filiforme, Hedw. On granite ledges, Lake Pend d'Oreille (23).

Heterocladium dimorphum, (Brid.) Br. & Sch. Mineral Point, Lake Pend d'Oreille, sterile on dry slate ledges (175). On quartzite ledges 5,000 ft. alt., divide between Traille River and Independence Creek, Sept., 1890.

Heterocladium aberrans, Ren. & Card. With *H. loreum*, fertile; shady woods on the ground, Traille River basin, 1888 (84pp). Granite ledges Lake Pend d'Oreille with *Isothecium*, May, 1889 (174pp). On rocks, trees and on the ground, along streams, April, 1890 (138).

H. heteropterum, Sch. On quartz croppings of metalliferous veins, Traille River basin, June, 1890; also in large mats on ledges, near water line, along Traille River, July 19, 1890 (254).

Hylocomium parietinum (L.), Lindb. (*Hypnum Schreberi*, Willd). Granite ledges, Lake Pend d'Oreille (168).

H. squarrosum, L. Grassy places, Traille River, Sept., 1889 (71).

Tripterocladium leucocladulum, Muell. (*Platygyrium rupestre*, Kindb. BULLETIN xvii. p. 276.) Compared with the types kindly sent me by Chas. Mohr of Mobile, Alabama, and with Macun's Canadian Mosses No. 469. Crevices of granite ledges, shores of Lake Pend d'Oreille, sterile, April, 1890. Hanging in dense masses from escarpments of dolomite, in shady cañons, North Gold Creek, Lake Pend d'Oreille, fertile. May, 1890 (241).

Pterigophyllum lucens, Brid. Traille River basin, July, 1890 (249).

Climacium dendroides, W. & M. Traille River basin, Feb. 1889 (176).

Antitrichia curtipendula, Brid. var. *gigantea*, Lesq. On trees, Traille River Basin, June, 1889 (177).

Alsia abietina, Sull. pl. m. In one location only under overhanging ledges. Lake Pend d'Oreille, March, 1889 (156).

Description of Plate CXIV.

Fig. 1.—BRYUM LUCIDUM, E. G. BRITTON, about natural size.

Fig. 2.—An enlarged capsule.

Fig. 3.—The peristome more highly magnified.

Fig. 4.—A very young capsule, with calyptra considerably magnified.

Fig. 5.—One tooth of the outer peristome considerably magnified.

Fig. 6.—Portion of the inner peristome, showing three of the cilia ; one of them branched.

Fig. 7.—A leaf somewhat enlarged.

Fig. 8.—Tip of leaf highly magnified.

Fig. 9.—A portion highly magnified, showing basal cells and margin.

Fig. 10.—A portion highly magnified, showing lateral marginal cells and their contact with the inner cells taken about one-third below the apex.

Fig. 11.—*Bryum proliferun* (L.) Sibth., about natural size.

Fig. 12.—An enlarged capsule.

Fig. 13.—A fragment of the outer peristome.

Fig. 14.—A fragment from inner peristome, showing the two appendiculate cilia and open carinate segments.

Fig. 15.—Leaf somewhat enlarged.

Fig. 16—Tip of leaf highly magnified.

Fig. 17.—Fragment of margin of leaf two-thirds of the way up, showing contact of marginal with inner cells, highly magnified.

Fig. 18.—GRIMMIA PHILIBERTIANA, E. G. BRITTON, about natural size.

Fig. 19.—An old wrinkled capsule considerably magnified.

Fig. 20.—Two ripe plump capsules ; one with straight and other with oblique beak, considerably magnified.

Fig. 21.—The peristome closed, considerably magnified.

Fig. 22.—The peristome open, considerably magnified.

Fig. 23.—Teeth of the peristome more highly magnified.

Fig. 24 —The simple tip of a tooth highly magnified.

Fig. 25.—A leaf somewhat magnified, showing peculiar margin which appears to be double, or in some specimens double near the apex and becoming free to revolute towards the base.

Fig. 26.—Tip of leaf in normal condition highly magnified.

Fig. 27.—Abnormal tip, bearing propagula on the distorted and abnormally situated teeth.

Fig. 28.—Highly magnified cells from near base of leaf.

Fig. 29.—Capsule, old and wrinkled, of *G. Hartmanni*, Schimp., from Corsica. Collected by H. Philibert, July 18th, 1870.

Fig. 30.—Capsule of same moistened, showing peristome closed, somewhat magnified.

Fig. 31.—Tooth from peristome of same, showing the *bifid tip !* considerably magnified.

Fig. 32.—The end of one-half of a bifid tip highly magnified.

Fig. 33.—A leaf somewhat enlarged.

Fig. 34.—The tip of a leaf highly magnified.

Fig. 35.—A fragment showing cells near the base of leaf.